

1. Record Nr.	UNINA9910139434003321
Autore	Riehl James P
Titolo	Mirror-image asymmetry [[electronic resource]] : an introduction to the origin and consequences of chirality // by James P. Riehl
Pubbl/distr/stampa	Hoboken, NJ, : Wiley, c2010
ISBN	1-282-55009-8 9786612550096 0-470-58888-8 0-470-58887-X
Descrizione fisica	1 online resource (272 p.)
Disciplina	500 541.223
Soggetti	Geometry in nature Symmetry (Biology) Chirality Random dynamical systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	MIRROR-IMAGE ASYMMETRY; CONTENTS; PREFACE; LIST OF FIGURES AND BIOGRAPHIC PHOTOGRAPHS; 1 THE MIRROR IMAGE; HANDEDNESS; THE SYMMETRY OF NONSUPERIMPOSABLE MIRROR IMAGES; NOMENCLATURE FOR CHIRAL MOLECULES; NOMENCLATURE FOR DISSYMMETRIC AND OTHER CHIRAL MOLECULES; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF BIOGRAPHIC PHOTOGRAPHS, SIDEBARS, AND FIGURES; 2 MOLECULAR CHIRALITY IN LIVING SYSTEMS; OPTICAL ROTATION; FROM BIOT TO PASTEUR; BIOCHEMICAL HOMOCHIRALITY; DETERMINATION OF ABSOLUTE STRUCTURES OF CHIRAL MOLECULES; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES LIST OF BIOGRAPHIC PHOTOGRAPHS, SIDEBARS, AND FIGURES3 THE ORIGIN OF CHIRALITY IN LIVING SYSTEMS; MUST LIFE BE CHIRAL?; MIRROR-IMAGE LIFE?; THE ORIGIN OF HOMOCHIRALITY IN LIVING SYSTEMS; EXTRATERRESTRIAL CHIRALITY; NUCLEAR CHIRALITY; OTHER EXTRATERRESTRIAL SOURCES; THE BEGINNING OF LIFE ON EARTH:

BIOCHEMISTRY; GETTING STARTED IN THE RIGHT (OR LEFT) DIRECTION; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF SIDEbars AND FIGURES; 4 CHIRAL CHEMISTRY, RECOGNITION, AND CONTROL IN LIVING SYSTEMS; CHIRAL CHEMICAL EVOLUTION; CHIRAL RECOGNITION AT THE MOLECULAR LEVEL
EXAMPLES OF CHIRAL RECOGNITION AND DISCRIMINATIONS; SMELL; TASTE; COMMUNICATION; CHIRALITY AS A CONTROL MECHANISM IN BIOCHEMISTRY; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF BIOGRAPHIC PHOTOGRAPHS, SIDEbars, AND FIGURES; 5 CHIRALITY AND DRUGS; CHIRALITY IN NATURAL REMEDIES AND FOLK MEDICINES; ENANTIOMERIC DIFFERENCES IN NATURAL PRODUCTS; THALIDOMIDE AND REGULATION OF CHIRAL DRUGS; CHIRALITY AND DRUG ACTIVITY; IBUPROFEN; PROZAC; CIALIS; NEXIUM; LIPITOR; CHIRAL SWITCHING; EPHEDRINE, PSEUDOEPHEDRINE, AND METHAMPHETAMINE; PREPARATION OF PURE ENANTIOMERS; SUMMARY SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF BIOGRAPHIC PHOTOGRAPHS, SIDEbars, AND FIGURES; 6 THE CHIRALITY OF LIVING SYSTEMS; PRELIMINARY CAUTIONS; CHIRALITY IN NATURE; CLASSIFICATION OF PLANT AND ANIMAL CHIRALITY (ASYMMETRY); SYMMETRIC LIFE; RACEMIC LIFE; ASYMMETRIC LIFE; HOMO SAPIENS ASYMMETRY; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF SIDEbars AND FIGURES; 7 THE HANDEDNESS OF HOMO SAPIENS; ARE YOU RIGHT-HANDED OR LEFT-HANDED?; THE STATISTICS OF HANDEDNESS; THE ORIGIN OF LEFT-HANDEDNESS; THE HUMAN GENETICS OF HANDEDNESS; SUMMARY; SUGGESTIONS FOR FURTHER READING
REFERENCES; LIST OF SIDEbars AND FIGURES; 8 LIVING IN A RIGHT-HANDER'S WORLD; CLOCKWISE AND COUNTERCLOCKWISE (OR ANTICLOCKWISE) ROTATION; HELICAL STAIRWAYS; AROUND THE HOUSE; MAKING MUSIC LEFT-HANDED; THE CHIRALITY OF WRITING; SPORTS AND THE LEFT-HANDER; AMERICAN BASEBALL: THE CHIRAL SPORT; DRIVING ON THE LEFT OR RIGHT SIDE; WINDMILLS; SUMMARY; SUGGESTIONS FOR FURTHER READING; REFERENCES; LIST OF SIDEbars AND FIGURES; 9 THE ASYMMETRIC UNIVERSE; LIST OF FIGURES; APPENDIX; BIOGRAPHY; INDEX

Sommario/riassunto

An overview of the importance and consequences of asymmetry from molecules to the macroscopic world. As scientists have become more capable of probing the structure of three-dimensional objects at the molecular level, the need to understand the concept and the consequences of mirror-image asymmetry-chirality-has increased enormously. Written at an introductory level, *Mirror-Image Asymmetry* provides an overview of the importance and effects of asymmetry from the atomic and molecular world of physics and chemistry to the organisms and structures that we see and use in our everyday
